

Avery Dennison® LV-0700 Series Retroreflective Validation Decal Film

Issued: July 2013

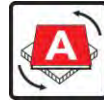
LV-0700 Series Reflective film is a quality, enclosed lens retroreflective material. LV-0700 is ideal for vehicle tag and sticker requirements where low temperature application is desired such as for license plate validation stickers.



Performance:
LS-300C



Durability: 3 years
Vertical exposure only



Orientation: Omni-Directional



Face: High Gloss
Retroreflective Polymer



Adhesive: Low Temperature
Permanent Pressure
Sensitive



Liner: 50lb SCK or 90lb Two
Side Polyethylene Coated
Paper



Application Surface: License
Plates, Glass, Painted
Automobiles

Features:

- Available with 10 standard colors plus custom colors
- Avery Secure Mark™ custom designed to prevent counterfeiting
- Tamper-evident and non-transferable
- High legibility day and night at various of entrance angles
- Omni-Directional
- Cold temperature performance
- High quality manufacturing - ISO certified – Lean Six Sigma

Conversion:

- Solvent Based Screen Printing
- UV Based Screen Printing
- Thermal Transfer Printing
- Rotary Screen Printing
- Flexographic Printing
- Letterpress Printing
- Thermal Die-Cut
- Guillotine Cutting
- Steel Rule Sign-Cut
- Rotary Press Die-Cut

Product Availability:

Color	50 lb Liner	90 lb Liner
White	LV-0750	LV-0790
Green	LV-0757	LV-0797
Lemon Yellow	LV-0752	LV-0792
Yellow	LV-0751	LV-0791
Yellow Green	LV-0756	LV-0796
Orange	LV-0754	LV-0794
Blue	LV-0755	LV-0795
Magenta	LV-0759	LV-0799
Red	LV-0758	LV-0798
Gold	LV-0753	LV-0793

Product Data Sheet

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Retroreflectivity:

LV-0700 Series Retroreflective Validation Decal Film **exceeds** all minimum coefficients of retroreflection values seen in **Table A**.

Table A:
Minimum Coefficient of Retroreflection (R_A)¹

Observation Angle	Entrance Angle	White	Orange	Yellow	Lemon Yellow	Yellow Green	Green	Red	Magenta	Blue	Gold
0.2°	-4°	50	6	30	28	24	28	10	12	14	30
	40°	15	2	8	11	8	8	3	3	5	10

¹ R_A = candelas per foot-candle per square foot (cd/ft²)

Colors and Specification Limits:

LV-0700 Series **meets** the color and minimum luminance requirements as defined by Commercial Vehicle Safety Alliance (CVSA) for shown in **Table B**.

Table B:

Color:	1		2		3		4		Reflectance min. %
	x	y	x	y	x	y	x	y	Y
White	0.303	0.290	0.365	0.354	0.340	0.378	0.278	0.316	35
Green	0.115	0.300	0.200	0.490	0.297	0.360	0.242	0.265	14
Lemon Yellow	0.403	0.508	0.440	0.550	0.504	0.457	0.455	0.462	34
Yellow	0.447	0.472	0.480	0.512	0.536	0.456	0.500	0.420	29
Yellow Green	0.180	0.320	0.180	0.500	0.280	0.460	0.280	0.360	18
Orange	0.502	0.398	0.573	0.425	0.627	0.368	0.535	0.360	18
Blue	0.105	0.240	0.232	0.250	0.240	0.200	0.180	0.140	8
Magenta	0.465	0.235	0.465	0.285	0.520	0.285	0.520	0.235	9
Red	0.552	0.358	0.630	0.370	0.695	0.305	0.601	0.310	6
Gold	0.415	0.390	0.415	0.445	0.458	0.455	0.458	0.390	19

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Watermark/Security Mark:

For enhanced security, all colors are available with Avery Dennison's standard 'official' watermark. The watermark is a below surface, overt, non-directional reading image, designed to deter counterfeit replication. Custom watermarks employing the same technology are also possible. Contact your Avery Dennison sales representative to discuss the details of your application.

Standard available watermark:



Characteristics:

<i>Property</i>	<i>Value</i>
Shelf-Life	1 year from date of purchase when stored at the following conditions; 65°-75°F (18°-24°C) and 50% ± 5% R.H.
Typical Film Caliper	3.5 – 4.5 mils (89 – 114µ)
Min. Application Temperature	-10° F (-23° C) When properly processed and applied
Service Temperature	-40°F to +180°F (-40°C to + 82°C)
Application Surface	Flat surfaces only.
Other Tests	Avery Dennison Retro-Reflective LV-0700 Series Validation Decal films meet all other requirements set forth in ASTM D 4956 including shrinkage, flexibility, liner removal, adhesion, Impact resistance, specular gloss and outdoor weathering.

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Converting Information:

The following Avery Dennison literature will provide information to the user for proper application, storage, and other requirements. Find the latest information on the Avery Dennison website, www.reflectives.averydennison.com. We encourage you to check our website periodically for updates.

Converters and end users must pre-qualify all printing inks, print processes, ribbons, toners and equipment to insure durability and desired performance for specific decal applications.

General Converting and Application Information:	
Thermal Transfer	<ul style="list-style-type: none"> Resin ribbons and clear coats recommend for long term durability and chemical resistance.
Printing	<ul style="list-style-type: none"> The surface of the material can be printed using conventional flexography, letterpress or screen printing technology. All inks should be pre-qualified with ink manufacturer. Can be adapted for electronic variable information printing processes (toner based laser printing) through converter applied and qualified surface coatings and imaging systems.
Die-Cutting	<ul style="list-style-type: none"> During die cutting the glass bead technology used to produce retroreflective film will act as an abrasive agent. This will shorten cutting/perforating tool life expectancies. Please consult your die manufacturer for insight on tooling specifics prior to purchase. Hardened rotary dies are suggested.
Application	<ul style="list-style-type: none"> Not recommended for unpainted stainless steel. Always pretest your specific substrate prior to actual application. Wet method of application is not recommended. Surface must be smooth, dry, and clean. Do not exceed 3 stickers overlaid per plate. To make remove more difficult, apply to depressed area in license plate.

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Warranty:

Avery Dennison LV Series beaded retroreflective sheeting ("Product(s)") are warranted to be free from defects in material and workmanship for one (1) year from date of purchase (or the period stated on the specific product information literature in effect at time of delivery, if longer). It is expressly agreed and understood that Avery Dennison's sole obligation and Purchaser's exclusive remedy under this warranty, under any other warranty, express or implied, or otherwise, shall be limited to repair or replacement of defective Product without charge at Avery Dennison's plant or at the location of Product (at Avery Dennison's election), or in the event replacement or repairs is not commercially practical, to Avery Dennison's issuing Purchaser a credit reasonable in light of the defect in the Product.

CONDITIONS

This warranty shall be effective only if all of the following conditions are met:

Fabrication and/or installation must occur within one (1) year from the date of purchase.

The failure must have resulted solely from a manufacturing defect or deterioration of the Product due to natural causes under the Performance Warranty. Without limiting the generality of the foregoing, there is no warranty for the failure of the sheeting due to improper sign fabrication, improper storage, handling, installation, maintenance, failure of the sign substrate, vandalism or mischief. Slight color fading, cracking, chalking, edge lifting, or slight reduction in gloss or reflectivity will not materially detract from appearance and does not constitute a breach of warranty.

Avery Dennison has published instructional bulletins pertaining to the storage, handling, and cleaning of Product, approved substrates, and application procedures (collectively, the "Procedures"). The Product must have been processed and applied to blank, clean material in accordance with the Procedures, as such may be amended from time to time. Avery Dennison reserves the right to reject any warranty claim where the fabricator or installer cannot satisfactorily prove or demonstrate that the Avery Dennison procedures were utilized. The date of installation, warranty registration, and claim procedures established by Avery Dennison must be followed, and failure to follow such procedures shall void this warranty. Replacement Product carries only the unexpired warranty portion of the Product it replaces. The Product must be properly stored and applied within the shelf-life as stated in the applicable Avery Dennison Product Data Sheet including adhesive and other material product data sheets.

WARRANTY/LIABILITY LIMITATIONS. The remedies provided under this warranty are exclusive. Avery Dennison shall not be liable for any direct, indirect, incidental or consequential damages or specific relief, including costs of procurement of substitute goods or services, arising in any way or under any cause of action whether or not Avery Dennison has been advised of the possibility of such damages. These limitations will apply notwithstanding the failure of the essential purpose of any limited remedy. Except as specifically provided herein, in no event shall Avery Dennison's liability hereunder exceed the remedies specifically set forth in this warranty or shall Avery Dennison's liability exceed the replacement value of the Products purchased.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHERS. ANY AND ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY DISCLAIMED.

All Avery Dennison products are sold with the understanding that Purchaser has independently determined the suitability of such products for its intended and other purposes.

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